

## **CLAIMS**

What is claimed is:

- 1 1. An apparatus comprising:
  - 2 a comparison unit coupled to an output of a final stage of multiple stages in a
  - 3 receiver channel; and
  - 4 a controller coupled to the comparison unit to calibrate each of the multiple
  - 5 stages.
  
- 1 2. The apparatus of claim 1, wherein the comparison unit includes a single
- 2 comparator coupled to the output of the final stage, the output to provide a signal
- 3 representative of a received signal at an input to the receiver channel.
  
- 1 3. The apparatus of claim 1, wherein the controller is adapted to decouple from
- 2 the receiver channel to characterize performance of the receiver channel.
  
- 1 4. The apparatus of claim 1, wherein the controller is reconfigurable to test the
- 2 receiver channel.
  
- 1 5. The apparatus of claim 1, wherein the apparatus is a portable wireless
- 2 receiver.
  
- 1 6. An apparatus comprising:
  - 2 multiple calibration circuits to calibrate multiple stages in a receiver channel;
  - 3 and
  - 4 a controller coupled to an output of a final stage of the multiple stages, the
  - 5 controller to control each of the multiple calibration circuits.

1    7.    The apparatus of claim 6, wherein the controller includes a single  
2    comparator coupled to the output of the final stage, the final stage output to provide  
3    a signal representative of a received signal at an input to the receiver channel.

1    8.    The apparatus of claim 7, wherein each calibration circuit is assigned to one  
2    stage of the multiple stages, the multiple stages being a sequence of filter stages in  
3    the receiver channel.

1    9.    The apparatus of claim 6, wherein each calibration circuit is adapted to  
2    provide a DC offset calibration.

1    10.   The apparatus of claim 6, wherein the multiple calibration circuits and the  
2    controller are adapted to decouple from the receiver channel.

1    11.   The apparatus of claim 6, wherein the controller includes a stage selection  
2    circuit to sequentially calibrate each stage of the multiple stages, wherein each of  
3    the calibration circuits is assigned to a separate one of the multiple stages.

1    12.   The apparatus of claim 11, wherein the controller includes:  
2        a comparison unit coupled to the final stage to evaluate a received signal  
3        propagating through the receiver channel;  
4        multiple registers coupled to the stage selection circuit, each register  
5        associated with a separate one of the multiple stages, each register to hold a signal to  
6        provide DC offset calibration to its associated stage; and  
7        a modulator to provide each register with its signal to provide DC offset  
8        calibration to its associated stage, the modulator responsive to an output of the  
9        comparison unit.

1    13.   The apparatus of claim 11, wherein the comparison unit is adapted to  
2    compare differential intermediate versions of the received signal.

1 14. The apparatus of claim 6, wherein the controller is reconfigurable to test the  
2 receiver channel.

1 15. The apparatus of claim 14, wherein the controller includes:  
2 a stage selection circuit to select one or more of the multiple stages to  
3 receive a test signal;  
4 multiple registers, each register associated with a separate one of the  
5 multiple stages to provide its associated stage with its test signal, each register  
6 responsive to the stage selection circuit;  
7 a modulator having a test enable input and test signal circuits to provide each  
8 register with its test signal.

1 16. A system comprising:  
2 a substantially omnidirectional antenna to receive a signal;  
3 a bandpass filter coupled to the antenna; and  
4 a receiver channel having multiple stages to convert the signal;  
5 multiple calibration circuits to provide calibration to the multiple stages; and  
6 a controller coupled to an output of a final stage of the multiple stages, the  
7 controller to control each of the multiple calibration circuits.

1 17. The system of claim 16, wherein the controller includes a single comparator  
2 coupled to the final stage of the multiple stages in the receiver channel.

1 18. The system of claim 16, wherein the controller includes a stage selection  
2 circuit to sequentially calibrate each stage in the multiple stages, wherein each of the  
3 calibration circuits is assigned to a separate one of the multiple stages.

1 19. The system of claim 16, wherein the multiple calibration circuits and the  
2 controller are adapted to decouple from the receiver channel.

1 20. The system of claim 16, wherein the controller is reconfigurable to test the  
2 receiver channel.

1 21. The system of claim 16, wherein the system is a portable wireless  
2 communication system.

1 22. A method comprising:  
2 evaluating a received signal from an output of a final stage of multiple stages  
3 in a receiver channel using a single comparison unit;  
4 selectively controlling the calibration of each stage of the multiple stages  
5 based on an output from the single comparison unit.

1 23. The method of claim 22, wherein using a single comparison unit includes  
2 using a single comparator.

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1 24. The method of claim 22, wherein selectively controlling the calibration of  
2 the multiple stages includes reducing a DC offset to less than 0.5 mV for each stage.

1 25. The method of claim 22, wherein selectively controlling the calibration of  
2 the multiple stages includes decoupling a controller having the single comparison  
3 unit as an input component from the receiver channel and decoupling calibration  
4 circuits that are adapted to calibrate the multiple stages from the receiver channel.

1 26. The method of claim 25, wherein the method further includes characterizing  
2 a performance of the receiver channel with the controller and calibration circuits  
3 decoupled from the receiver channel.

1 27. The method of claim 22, wherein selectively controlling the calibration of  
2 the multiple stages includes reconfiguring a controller having the single comparator  
3 as an input component to test the receiver channel.

1    28.    The method of claim 27, wherein the method further includes using the  
2    controller to generate a linear ramp signal to test the receiver channel.

1    29.    A computer-readable medium having computer-executable instructions for  
2    performing a method comprising:

3                controlling operational modes of a controller coupled to an output of a final  
4    stage of multiple stages in a receiver channel, wherein one operational mode  
5    includes calibrating each stage of the multiple stages based on evaluating a received  
6    signal from the final stage using a single comparison unit.

1    30.    The computer-readable medium of claim 29, wherein controlling operational  
2    modes includes providing a selection bypass signal to decouple the controller from  
3    the receiver channel and providing instructions to characterize a performance of the  
4    receiver channel with the controller decoupled from the receiver channel.

1    31.    The computer-readable medium of claim 29, wherein controlling operational  
2    modes includes providing a test enable signal to configure the controller to test the  
3    receiver channel.